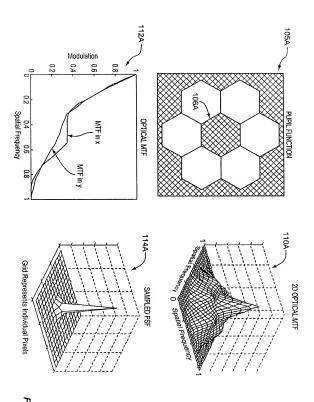
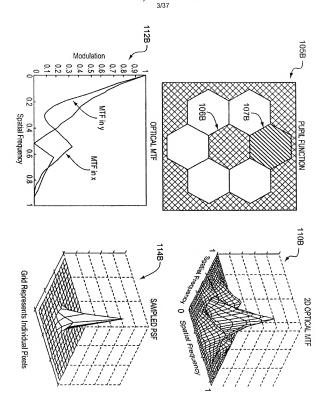


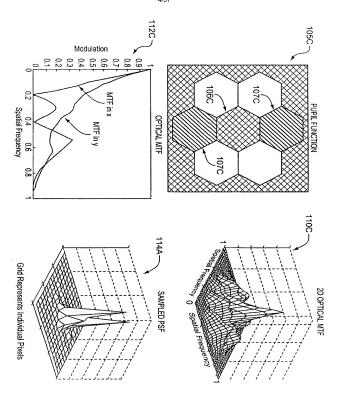
Title: METHODS FOR MINIMIZING ABERRATING EFFECTS IN IMAGING SYSTEMS
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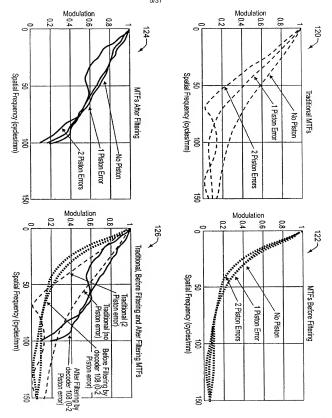
Title: METHODS FOR MINIMIZING ABERRATING EFFECTS IN IMAGING SYSTEMS Inventor: Edward R. Dowski Jr. et al Attorney Docket No: 420229



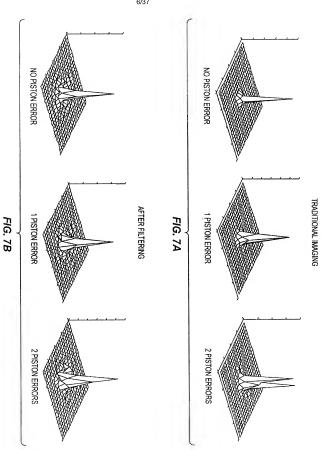
Title: METHODS FOR MINIMIZING ABERRATING EFFECTS IN IMAGING SYSTEMS Inventor: Edward R. Dowski Jr. et al Attorney Docket No: 420229 4/37



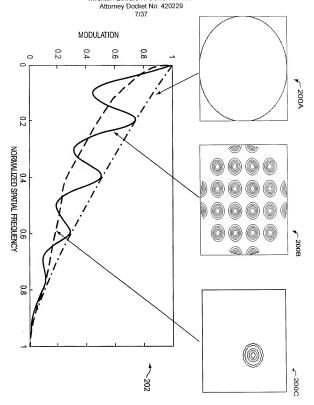
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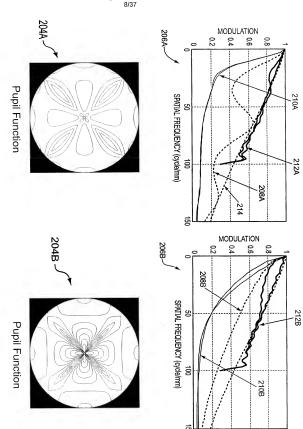
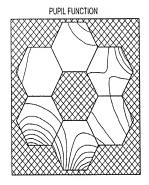


FIG. 9

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FIG. 10



FIRST ORDER OPTICAL PARAMETERS

2-meter collecting aperture 12-meter focal length 5-µm pixel size 100% fill factor 0.5 µm wavelength

Phase function is a Zernike polynomial with the following weights

| # | Mathematical Form | Weight | # | Mathematical Form | Weight |
|----|--------------------------------------|---------|----|--|---------|
| 0 | 1 | 0 | 11 | $(4\rho^2 - 3)\rho^2 \cos 2\theta$ | 0.0379 |
| 1 | ρ cosθ | 0 | 12 | $(4\rho^2 - 3)\rho^2 \sin 2\theta$ | -0.1151 |
| 2 | ρsinθ | 0 | 13 | ρ ⁴ cos4θ | 0.5730 |
| 3 | 2ρ ² - 1 | -0.1914 | 14 | ρ ⁴ sin4θ | 0.2412 |
| 4 | ρ² cos2θ | -0.3986 | 15 | (4ρ ⁴ -12ρ ² +3)ρ cosθ | -0.3050 |
| 5 | ρ² sin2θ | 0.0290 | 16 | $(4\rho^4-12\rho^2+3)\rho \sin\theta$ | -0.1698 |
| 6 | (3ρ ² - 2)ρ cos 0 | 0.1073 | 17 | (5ρ ⁵ -4ρ ³)cos3θ | 0.0589 |
| 7 | (3ρ ² - 2)ρ sinθ | -0.0336 | 18 | (5ρ ⁵ -4ρ ³)sin3θ | -0.0965 |
| 8 | ρ ³ cos3θ | 0.0496 | 19 | ρ ⁵ cos5θ | 0.7186 |
| 9 | ρ ³ sin3θ | -0.0562 | 20 | ρ ⁵ sin5θ | -0.5219 |
| 10 | 6ρ ⁴ - 6ρ ² +1 | -0.2093 | | | |

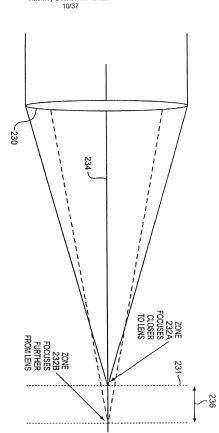


FIG. 1:

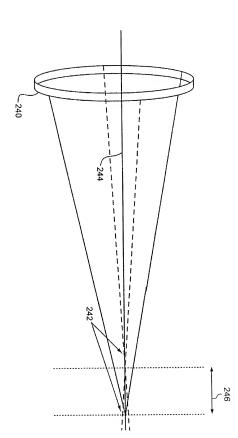


FIG. 1:

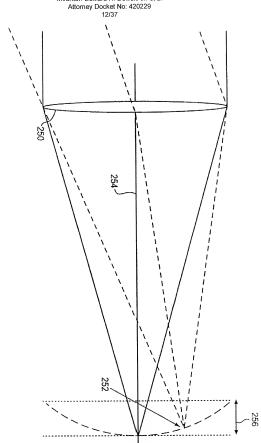


FIG. 1

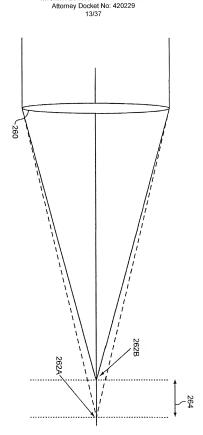
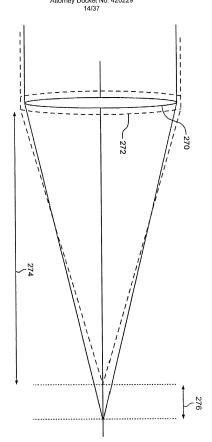


FIG. 1.



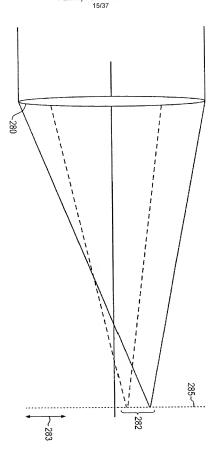


FIG. 1

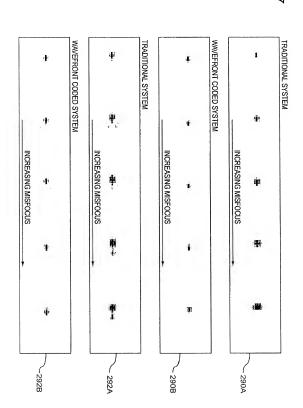
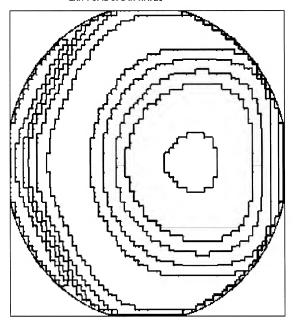
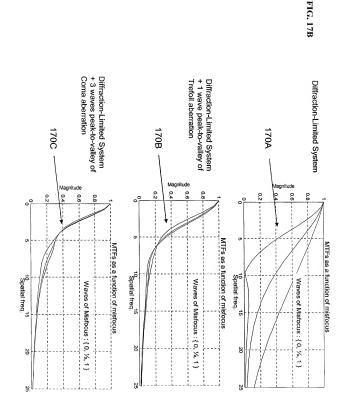


FIG. 17A

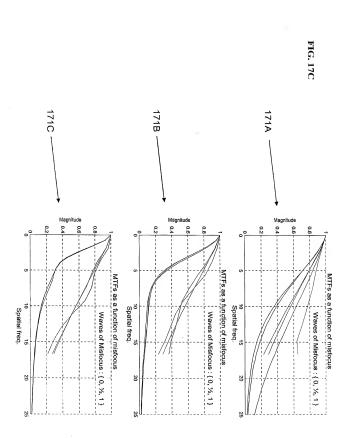
EXIT PUPIL OPD IN WAVES

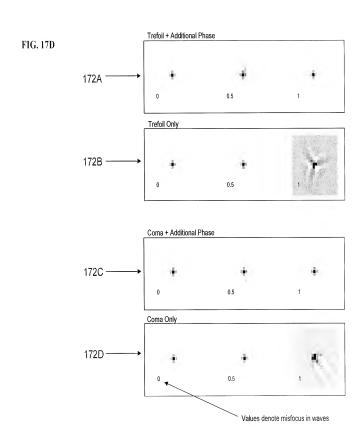


Weights = [-0.1837 -0.3292 0.3110 -0.0210 -0.0628] Functional Form = [R R³ R⁵ Rcos(θ) R³cos(3 θ)] Attorney Docket No: 420229 18/37



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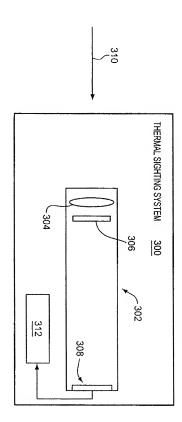
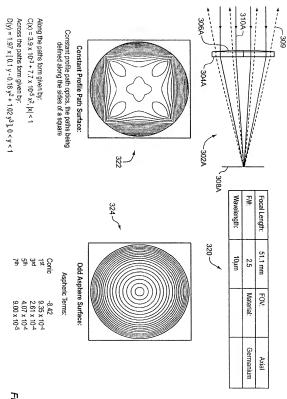
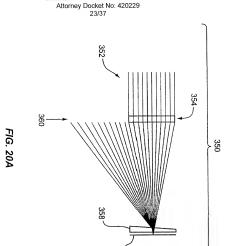


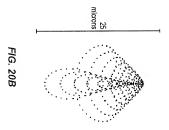
FIG. 18

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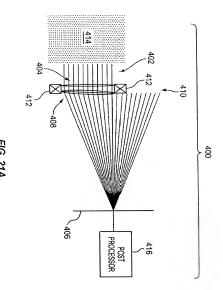
Title: METHODS FOR MINIMIZING ABERRATING EFFECTS IN IMAGING SYSTEMS Inventor: Edward R. Dowski JJ. et al.

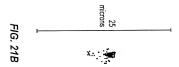




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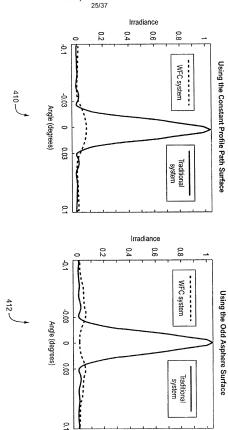
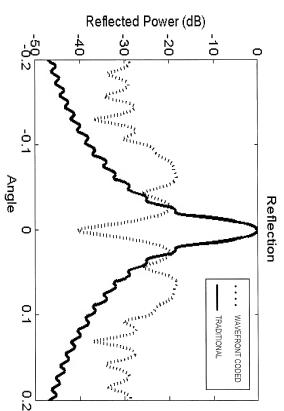
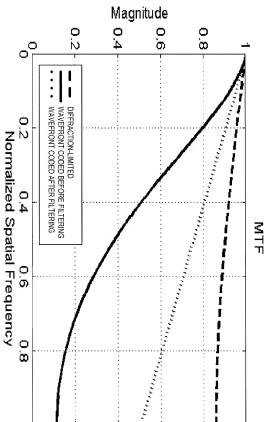


FIG. 22





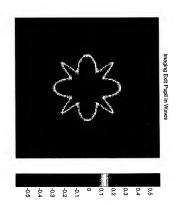
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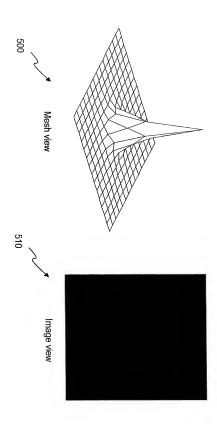


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FIG. 220





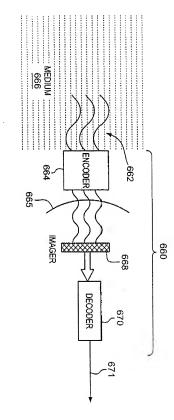
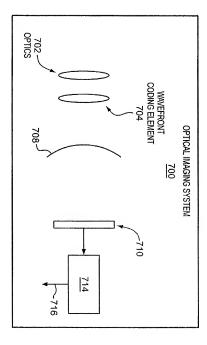


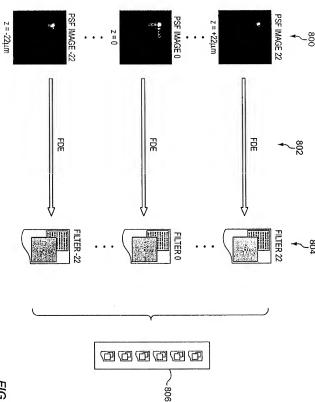
FIG. 23



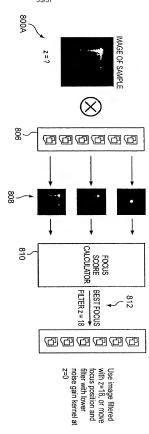


=IG. 24

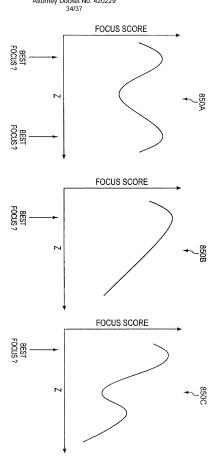
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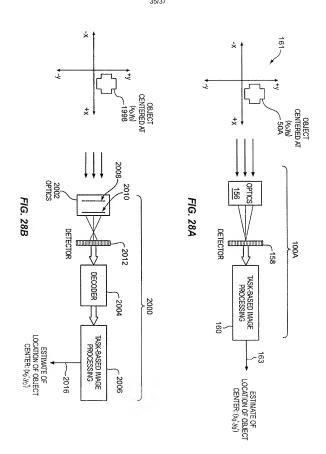


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IG. 2





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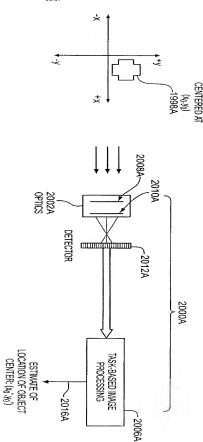
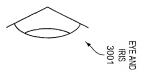


FIG. 28C

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3004 3002 OPTICS DETECTOR -3006 3000 3600 IRIS FEATURE CODE TASK-BASED IMAGE PROCESSING √3601